EXAMINING THE ROLE OF COGNITIVE DISSONANCE IN INTERGROUP TOLERANCE

A thesis submitted in partial fulfilment of the requirements for the Degree of Master of Science in Psychology in the University Of Canterbury by

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Abstract

Several interethnic ideologies (e.g., assimilation, colourblindness, and multiculturalism) have attempted to improve intergroup relations, yet intergroup tensions exists. The present study was designed to explore the psychological processes behind a relatively understudied concept – intergroup tolerance. Using the theoretical assumptions of the action-based model of cognitive dissonance, I explore the nature of intergroup tolerance for attitudes toward Muslims. Participants were asked to practice intergroup tolerance toward Muslims, which theoretically should elicit cognitive discrepancy (as measured by electroencephalography) and, in turn, facilitate dissonance reduction (as measured by change in attitudes toward Muslim). I hypothesised that intergroup tolerance and its outcomes should change depend upon participants' internal (IMS) vs. external (EMS) motivation to control prejudice. Contradictory to our prediction, after practice tolerance, participants with low IMS showed sign of dissonance reduction and more negative attitude toward Muslims compared to participants in the control condition. Participants with high IMS showed no difference in cognitive conflict or Muslim attitudes, while EMS did not have any interactive effect on the relationship between tolerance and cognitive conflict or Muslim attitudes.

Examining the Role of Cognitive Dissonance in Intergroup Tolerance

With increased international migration, there has been a tremendous growth in the cultural diversity of many countries around the world, making the study of intergroup relations an increasingly important topic in psychology. Although a large variety of studies have been conducted over the last few decades aimed at achieving harmonious intergroup relations, the primary focus of these studies has been dedicated to reducing negative intergroup outcomes. For example, a meta-analytic study revealed that between 1940 and the end of 2000, there were approximately 515 studies involved in examining the effect of intergroup contact in reducing prejudice (Pettigrew & Tropp, 2006). However, maintaining social harmony between diverse social groups cannot rely solely on getting people to like each other. In some situations, people may not necessarily dislike an outgroup, but rather disapprove of an outgroup's norms, values, and practices for various reasons. In such situations, people may need to be able to at least tolerate such differences. In the present work, I describe needed in today's diverse societies where people inevitably will confront situations where they disapprove of an outgroup's values, norms, and practices, but nevertheless agree to endure such differences. Here specifically, I examine the psychological processes involved in practicing tolerance, while examining how individual differences in perceivers' motivations impact on the cognitive conflict they experience when evaluating outgroup members.

Living Amongst Diversity

Over the last decade, researchers have examined several diversity ideologies that attempt to promote positive intergroup relations, including assimilation, colourblindness, and multiculturalism. Specifically, assimilation refers to the belief that the members of minority group should conform to the majority group, while colourblindness refers to the belief that people should be treated equally or judged as individual human beings regardless of their

group membership. By contrast, multiculturalism emphasizes recognition and acceptance of cultural diversity.

Both assimilation and colourblindness try to facilitate national unity by de-emphasising diversity or group membership. Although this has been suggested to decrease prejudice in theory (e.g., Weible, Peterson, & Casas, 2007), they have drawbacks in practice. Both ideologies go against people's fundamental need for affiliation with important social groups that are part of their self-concept. Moreover, suppression of group recognition has been found to rebound with increased prejudice in long-term practice (Correll, Park, & Smith, 2008). For assimilation, in particular, it tends to be hierarchy enhancing by spontaneously promoting conformity to the majority group and increasing outgroup prejudice (Guimond, Crisp, & Oliveira, 2013; Levin et al., 2012; Verkuyten, 2011). Consequently, the identity of majority group might be overly affirmed and the identity of minority groups might be threatened (see Wolsko, Park, & Judd, 2006).

Multiculturalism has been found to improve intergroup relations and well-being of minority groups (Berry & Kalin, 1995; Verkuyten & Martinovic, 2006; Verkuyten, 2006), at least under some conditions. Support for this argument is found in several disciplines including counselling (Sue, 2003), education (Banks & Banks, 2004), organisations (Plaut, Thomas, & Goren, 2009), and developmental contexts (Berry, Phinney, Sam, & Vedder, 2006). One study, however, found that after presenting a message that advocates multicultural ideology, participants exhibited stronger stereotypes in judgements of the outgroups (Wolsko, Park, Judd, & Wittenbrink, 2000). Researchers suspected that multiculturalism might have the potential to legitimise stereotyping by enabling people to use group differences as a means for expressing their existing stereotypes or justify inequitable treatment (Ryan et al., 2007; Park & Judd, 2005). Other work suggests that multiculturalism can receive backlash from the majority group that perceive the ideology as threatening to

their own group's values, norms, and practices, or a threat to the national identity (Ginges & Cairns, 2000; Morrison, Plaut & Ybarra, 2010; Verkuyten, 2005; Verkuyten & Martinovic, 2006; Yogeeswaran & Dasgupta, 2014).

Another criticism of multiculturalism might be that, in some situations, cultural differences between groups are simply incompatible thus cannot be accepted or embraced. For example, some people consider Islamic and Western norms and values as in conflict with each other (Kundnani, 2007). In contrast to active animosity that some may feel toward a minority outgroup, there are some that may not necessarily dislike the outgroup, but simply disapprove of specific norms, values, and practices of the outgroup. In such cases, people may object to specific values or beliefs of an outgroup, but nevertheless agree to endure such differences, through what is called intergroup toleration (Verkuyten & Yogeeswaran, 2016).

Intergroup Tolerance

Intergroup tolerance refers to contexts where people object to specific beliefs and practices of an outgroup, but nevertheless accept these differing worldviews and behaviours for other reasons. Verkuyten and Yogeeswaran (2016) argue that intergroup tolerance consists of three components: (1) the objection component where one disagrees or disapproves of the norms and practices of an outgroup, (2) an acceptance component where one nevertheless accepts or endures the differences, and (3) rejection, which involves establishing boundaries of acceptance such that particular norms and practices are rejected.

Intergroup tolerance may involve a conscious process of solving cognitive inconsistency because when people actively engage in tolerance, their cognitions and behaviours are inconsistent with each other (objection to outgroup's norms, values, and practices, while nevertheless deciding to endure those differences). Such a conceptualisation of intergroup tolerance implies that people may experience cognitive conflict when engaging with intergroup tolerance. Therefore, the present work tests whether enduring a certain

cultural practice while disapproving it produces cognitive conflict. The present research empirically examines this question using EEG (electroencephalography) to assess cognitive conflict of the behavioural inhibition system when people engage in intergroup toleration.

Cognitive Dissonance

According to cognitive dissonance theory (Festinger & Carlsmith, 1959), people strive to keep their cognitions, attitudes, and behaviours consistent. For instance, people who believe in egalitarianism would also like to behave in a non-prejudiced manner. Inconsistent cognitions would create a psychologically uncomfortable state, so people in the state of cognitive dissonance are motivated to reduce the dissonance. For example, when an anti-Muslim man hears a positive news report about Muslims on television, he may (a) change his cognition (e.g., "Muslims might be good"), (b) subtype the positive news story as the exception to the rule to maintain previous cognition (e.g., "there are a lot of other news stories about Muslim terrorist attacks, so one good news story does not make the people good"), or (c) deny or ignore anything that challenge the previous cognition (e.g., "this news is fake"). Since the theory was first proposed in the 1950s (Festinger, 1957; Festinger & Carlsmith, 1959), it has led to a large body of fruitful research in social psychology and is considered to be one of the most influential theories in psychology (van Veen, Krug, Schooler, & Carter, 2009).

While the original theory did not specify why cognitive inconsistency causes a negative emotive state and why people are motivated to reduce that inconsistency, more recent work on the action-based model of dissonance (Harmon-Jones, 1999; Harmon-Jones, Amodio, & Harmon-Jones, 2009) tries to address these questions. Specifically, the model begins with an assumption that many cognitions have some degree of action implications including approach- and avoidance-motivation (see Harmon-Jones, Harmon-Jones, Serra, & Gable, 2011). A psychologically uncomfortable state is evoked when there is inconsistency

between cognitions (or cognitive discrepancy) because it makes the individual unable to carry out the effective action. This negative affect then creates a motivation to engage in dissonance reduction through an approach-motivation. Dissonance reduction then takes place by bringing cognitions into coherence and "thus facilitates the execution of effective action" (Harmon-Jones et al., 2011). The action-based model of dissonance is also consistent with Brehm and Cohen's (1962) argument that most dissonance emerges after the individual makes a decision; once a decision is made, people upgrade their evaluations of the chosen decision, while downgrading the value of the rejected action (Harmon-Jones et al., 2011).

The action-based model of dissonance is evidenced in neuropsychological studies. First, cognitive discrepancy would increase brain activity, particularly in the anterior circulate cortex (ACC) region, which is involved in monitoring the presence of conflict (Gehring, Goss, Coles, Meyer, & Donchin, 1993). Once the conflict is detected by ACC, dissonance reduction and attitude change can occur rapidly. Much evidence suggests that activation in left frontal cortical region is involved in dissonance reduction. For example, in an EEG experiment (Harmon-Jones, Gerdjikov, & Harmon-Jones, 2008), researchers asked participants to write a counter-attitudinal essay about an increase in tuition at their own university. Participants in the low-choice condition (low choice to engage in an action that is counter to an attitude they hold) were told that they are randomly assigned to write that tuition should be increased. Participants in the high-choice condition (high choice to engage in an action that is counter to an attitude they hold) were told that writing arguments in favour of the tuition increase was their choice and completely voluntary. Participants in the high-choice condition showed greater left frontal activation relative to those in the low-choice condition. Moreover, high commitment to write the counterattitudinal essay (high choice) led attitudes to be more in line with their arguments in favour of the tuition increase compared to low commitment (low choice). Researchers explain these findings by suggesting that commitment to a chosen

course of action should lead to heightened activity in left prefrontal cortex, which, in turn, should be associated with dissonance reduction in supporting the chosen course of action (Harmon-Jones, Harmon-Jones, & Levy, 2015). In this approach-motivated state, individuals are motivated to enact the decision and behave effectively with regard to it in order to increase decision implementation and goal accomplishment. In the context of the present work, this implies that intergroup tolerance may elicit dissonance due to consideration of practices and norms that one disapproves of while simultaneously considering reasons to nevertheless accept those practices. Such dissonance and conflict may lead to outgroup attitude change. The present research examines the impact of intergroup tolerance on both cognitive conflict and subsequent outgroup attitudes.

Motivation to Control Prejudice

Over the past 50 years, the increasing emphasis on egalitarianism in legislation, and social norms has largely made people more cautious about their public expression of prejudice toward outgroups. In today's Western societies, overt expression of prejudice is not only socially unacceptable, but may also be illegal in some cases. However, to respond without prejudice toward outgroups is sometimes difficult. Much evidence has shown that prejudice may be activated spontaneously, without conscious awareness, fostered by years of exposure to biased information and triggered by relevant situational cues (e.g., Greenwald & Banaji, 1995; Banaji & Hardin, 1996; Devine, 1989). However, people may be motivated to refrain from prejudice expression for two different reasons. Devine (1989) argued that people are motivated to exert prejudice control in their intergroup responses, but the source that they use in regulating their responses varies substantially. Researchers (e.g., Plant & Devine, 1998; Dunton & Fazio, 1997) observed that people are typically driven by two uncorrelated sources of motivation – internal and external, and developed the internal motivation scale

(IMS) and external motivation scale (EMS) to assess these two dimensions (Devine and Plant, 1998).

Studies find that people might be primarily motivated to respond without prejudice for internal reasons such as personal standards, values and beliefs – i.e., they possess an internal motivation to control prejudice. These people tend to be less prejudiced because doing so is vital to their self-concept. However, people may also respond without prejudice mainly for external reasons such as social constraints on overt expression of prejudice – i.e., they possess an external motivation to control prejudice. These people may feel compelled to behave positively toward an outgroup member in order to avoid sanctions from others or maintain public approval (Devine & Plant, 1998). To illustrate these assumptions, Plant and Devine (2010) examined the influence of White participants' source of motivation to respond without prejudice on interracial interactions with Black people. They found that internally motivated White participants reported that they are more likely to use approach strategies, such as maintaining eye contact, smiling, and sharing personal information, to pursue positive interaction with the outgroup individuals than people with low IMS. In contrast, since externally motivated participants were primarily concerned about being judged by others, they were more likely to report using avoidance strategies when interacting with an outgroup member than those with low EMS. They mainly engaged in social strategies that could help them to avoid negative reactions from others, such as avoid making any statement that may come across as biased.

The source of people's motivation to suppress prejudice has significant influence on the effectiveness of their responses (Amodio, Devine, & Harmon-Jones, 2003). In three studies, Devine, Plant, Amodio, Harmon-Jones, and Vance (2002) found that people with high IMS are able to respond without prejudice across both implicit and explicit measures. In contrast, people with low IMS, regardless of their level of EMS, did not show sign of

regulating bias on either implicit or the explicit measure with the absence of external pressure. Later, Amodio, Devine, and Harmon-Jones (2008) further replicated these findings with neurological evidence. In their study, participants' brain activity was monitored while engaging in a priming task that was designed to assess stereotypical association and also could potentially elicit racially-biased responses. Results showed that those with high IMS exhibited significantly more brain activity in detecting conflict and more cognitive control over stereotype-driven tendencies in both implicit and explicit measures than participants with high EMS and with low IMS. They argued that these differences were due to differential brain activity that was facilitated by cognitive dissonance. This implies that people with high IMS experience greater cognitive dissonance when evaluating outgroups than those with low IMS and high EMS because doing so violates their self-concept as egalitarian. In other words, people high in IMS experience more cognitive conflict when evaluating outgroups because their internal motives lead to a desire to be unprejudiced for personal reasons and this may create cognitive discrepancies when having to evaluate outgroups.

In short, both internal and external motivations to control prejudice are self-regulatory processes in prejudice reduction, but the effectiveness of reduction depends upon the level of internalisation of egalitarian beliefs. On one hand, if people's decision to respond without prejudice toward outgroups is self-determined (high IMS), situations that get one to consider outgroup objections, and outgroup evaluation might activate their control responses regardless of external cues. On the other hand, those who respond without prejudice with the goal of avoiding social disapproval from others (high EMS) might, without external pressures, act indifferently across biased situations.

The Present Study

Despite the importance of intergroup tolerance for living in a pluralistic society, little research has been done to systematically examine the psychological processes or

consequences involved in it. Therefore, I examined the neurological changes involved when people practice intergroup tolerance. Moreover, I examined whether practicing intergroup tolerance has a differential effect depending on people's motivation to control prejudice. By applying the theoretical assumptions of action-based model of dissonance to the context of intergroup tolerance, I designed the present research. Because the steps required to achieve intergroup tolerance bears much resemblance to the process of action-based model of cognitive dissonance, and the two major components of intergroup tolerance are cognitively conflicting in principle, I hypothesise that intergroup tolerance would elicit cognitive discrepancies. Specifically, by asking participants to engage in the process of identifying any outgroup norms, values, and practices that they object to, and then asking them to consider reasons why they may nevertheless accept those values and practices, people are likely to experience cognitive dissonance. Such dissonance should drive evaluations of the relevant outgroup.

Additionally, an individual's motivation to respond without prejudice may be an important moderator for the relationship between intergroup tolerance and cognitive dissonance. Specifically, for people low in IMS, it may be that practicing intergroup tolerance would have no effect on cognitive dissonance and thereby have no consequences for outgroup attitudes because such individuals are unmotivated to regulate their prejudicial responses and potentially comfortable with expressing outgroup prejudice. However, it may also be that encouraging low IMS individuals to practice intergroup tolerance may lead them to react negatively to the outgroup due to psychological reactance (Brehm, 1966). In other words, low IMS individuals who are unmotivated to regulate their outgroup attitudes may show reactance to a message asking them to actively tolerate an outgroup's beliefs, norms, and practices. By contrast, for individuals high in IMS, it may be that they experience high dissonance regardless of whether they practice tolerance or simply consider outgroup

practices and norms they disapprove of since identifying outgroup norms and practices they disapprove of may elicits concerns over appearing prejudiced in itself. In other words, such individuals may experience dissonance regardless of whether they come up with reasons to nevertheless accept outgroup practices they disapprove of since disapproval of outgroup practices, norms, and values conflicts with their desire to maintain a moral sense of self that is unprejudiced. By contrast, for high EMS individuals, intergroup tolerance may lead to cognitive conflict if there are concerns about social approval, but not necessarily when no social pressures exist to be unprejudiced.

In the present work, Muslims were chosen to be the target outgroup. I specifically focused on Muslims because the Muslim population has increased dramatically in Western countries and Muslims are at the centrepiece of many political debates on immigration and integration. Despite the rapidly increasing population, many Western countries are still unable to properly integrate Muslims. Islamic populations have often appeared in public debates over immigrant integration and multiculturalism, and often considered as incompatible or conflicting with the principles of Western civilisation (Jaspal & Cinnirella, 2010; Gungor, Fleischemann, Phalet, & Maliepaard, 2013). In one extreme incident, Dutch politician, Pim Fortuyn, published a book in which he described Islam culture is dangerous for the survival of Western civilization and argued a need of "a cold war with Islam" (Veer, 2006). From the perspective of Western majority, the Muslim group is a "barrier that stands in the way of their societal integration" (Gungor et al., 2013, p. 1). In the eye of Muslims, however, their religious identity is the source of social support (Ysseldyk, Matheson, & Anisman, 2010), subjective well-being and meaning making (Jasperse, Ward, & Jose, 2012) creating what some perceive as a clash of civilizations (Huntington, 1997).

Method

Participants

One hundred and seventy two people completed the experiment in exchange for course credit or a $10 gift voucher. Participants were recruited via the psychology participant pool or through advertisements placed around campus. Participants comprised 47 males (27.3%) and 125 females (72.7%) aged from 18 to 62 years (M = 21.73, SD = 6.19). One hundred and twenty four participants identified themselves as being of European-descent (72.1%), 20 identified as Asian (11.6%), while the remaining comprised people of Maori (0.6%), North American (1.2%), others (2.3%), and multi-ethnicity (12.8%). Most participants (83.1%) reported being New Zealand citizens or permanent residents. No individual from any ethnic group was excluded in data collection, but I did not include data from 3 Muslim participants in any analyses, as Muslims were the target group for the study.

Manipulation

In both conditions, participants were first asked about their thoughts regarding specific practices, norms, or values of Muslims that they disapprove of. Participants were then asked to list a minimum of three reasons why they may object to each of these practices. Participants were then provided a list of practices, norms, or values allegedly identified by other participants in the study that they disapprove of. These included contemporary examples of disapproval people have such as the creation of Islamic schools, formation of an Islamic political party, wearing of the hijab and burqa in public places, the creation of separate swimming pools for men and women, and being allowed to publicly express their disapproval of homosexuality. Participants were asked to indicate which of those practices, norms, or values that are most similar to their own generated list. In the control condition, participants' task ended there. However, in the experimental condition, they were then asked to provide reasons for why they should nevertheless accept or endure these cultural practices

before being provided with a list of reasons to accept these practices allegedly provided by other participants (e.g., freedom of religion, freedom of speech, etc.; see Appendix D for full details of manipulation).

Measures

General Demographic Information. Participants were asked to complete a 6-item demographics questionnaire that gathers information regarding age, gender, highest education received, ethnicity, religious belief, and nationality. Data of participants who identified themselves as Muslim were excluded in the analyses, as I was only interested in the reactions of non-Muslim individuals toward Muslim cultural practices.

EEG. EEG was recorded with the 14-electrode Emotiv EPOC+ headset and the Emotiv TestBench software (Emotiv Systems Inc., San Francisco, CA, USA). Emotiv headsets were positioned on the scalp of each participant prior to the start of the study according to the international 10-20 system and data were sampled at a rate of 128 Hz from the following electrodes (gold-plated contact-grade hardened copper with saline moistened felt pads): AF3, AF4, F3, F4, F7, F8, FC5, FC6, P7, T7, T8, P8, O1, and O2; two electrodes positioned over the mastoids served as online reference. Importantly, the Emotiv EEG device has been validated for measurement of alpha suppression and event related potentials in comparison to standard EEG systems (see also Stopczynski, Stahlhut, Larsen, Petersen, & Hansen, 2014).

Motivation to control prejudice. The measurement for internal (IMS) and external (EMS) motivation to control prejudice was adapted from the scale that was developed by Plant and Devine (1998). I adapted the scale by changing the word “Blacks”, which was used in the original scale to measure prejudice toward African Americans, to the word “other ethnic groups”. Same as the original version, the adapted version consists of 10 items with two subscales – IMS (e.g., “I attempted to act in non-prejudiced ways toward people of other

ethnic groups because it is personally important to me") and EMS (e.g., "I try to hide any negative thoughts about people from other ethnic groups in order to avoid negative reactions from others"). Each subscale comprises 5 items measured on a 1 (not at all like me) to 9 (very much like me). Reliability revealed satisfactory levels of internal consistency for both IMS (α = .82) and EMS (α = .79).

Social Attitudes. Attitude toward various groups including Muslims, Atheists, Elderly, and Christians were measured using a feeling thermometer (Converse, Dotson, Hoag & McGee, 1980), a standard measure of outgroup attitudes used in much of the intergroup literature. Participants indicated how they felt about various groups on a scale going from 0 (indicated cold or unfavourable feelings or prejudice) to 100 (indicating warm or favourable feelings or non-prejudice). The inclusion of other groups was done in order to avoid suspicion about the nature of the study.

Procedure

Participants were randomly assigned to either the experimental condition or control condition with one to two participants per session. All participants were first welcomed and given information sheet and consent form. In experimental condition, participants completed a series of tasks that evoke intergroup tolerance, including consideration of specific outgroup practices that one objects to and the consideration of reasons to nevertheless accept these practices. In the control condition, participants simply considered reasons to object to practices of the out-group (see below for details). The entire research took place in the social psychology laboratory at University of Canterbury for approximately 45 minutes. In the Pre-EEG Measurement phase, participants completed a series of questionnaires including a general demographic questionnaire and a measure of their motivation to control prejudice. After completing these questionnaires, participants were asked to put on a headset that

measured EEG. While wearing this headset, participants completed the manipulation and then the dependent measures of the study. At the end, participants were debriefed.

Results

Data preparation

Baseline EEG and EEG during Muslim evaluation were recorded and digitized. Offline, EEG was bandpass filtered at .1–30 Hz and notch filtered at 50 Hz. Eye blinks were automatically detected using independent components analysis. Movement artefacts were automatically detected with a −100 μV and +100 μV threshold. Contiguous artefact-free epochs of 2 s were extracted through a hamming window and overlapped by 75% to avoid data loss across both the baseline and Muslim evaluation periods. Power spectra were calculated via fast Fourier transform and power values (in μV^2) were averaged over the epochs and total alpha band power (8–12 Hz), an inverse indication of cortical activity, was logarithmically transformed. Baseline left PFC asymmetry was calculated as two scores across 1) the baseline and 2) Muslim evaluation as F4 minus F3 electrode log alpha power. Lower scores indicate relatively greater right-than-left cortical activation and higher levels of conflict- or avoidance-related processing (Coan and Allen, 2004).

Mean Differences

A one-way ANOVA revealed no significant differences between the tolerance condition (M = 0.079; SD = 0.452) and the control condition (M = 0.059; SD = 0.413) on the EEG data indicating frontal cortical activity, $F < 1$, p = .78. Similarly, a one-way ANOVA revealed no significant difference between the tolerance condition (M = 50.26; SD = 21.46) and the control condition (M = 54.34; SD = 14.16) in attitudes toward Muslims, F (1, 170) = 2.168, p = .14.

Moderation analyses

Moderation analyses were conducted following Hayes' (2013) PROCESS macro to examine the interactive effect of IMS and EMS with condition on both cognitive conflict and outgroup attitudes. All analyses were computed using bias-corrected bootstrapping with

10,000 resamples. Note that the effect is statistically significant if the confidence interval (CI) does not include zero.

Internal Motivation to Control Prejudice. First, moderation analyses reveal a significant interaction between condition and IMS on relatively greater right-to-left cortical activity as assessed by the EEG while participants were asked to evaluate Muslims, B = -.14, SE = .06, p = .03. Johnson-Neyman tests for significance regions showed that the effect of condition on frontal cortical activity was significant for participants who reported very low IMS (i.e., $IMS < 5.2$; *IMS* ranges from 1 to 9). Specifically, Johnson-Neyman tests revealed that for those with IMS < 5.2, tolerance decreased relatively left-than-right frontal cortical activity (i.e., less cognitive conflict) as assessed by EEG relative to those in the control condition, $B > 0.31$, $SE > 0.16$, $p < .05$, 95% CI [0.01, 0.63] (see Figure 1a).

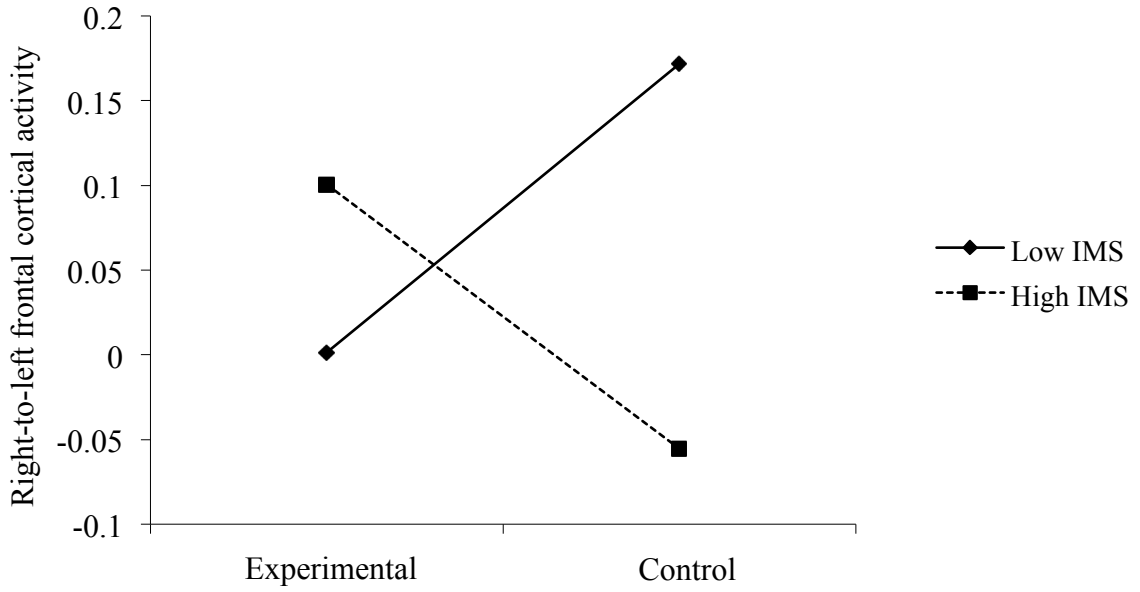

Figure 1a. Interaction effects of condition and IMS on relative right-to-left cortical activity. Decomposing by level of IMS.

Decomposing the interaction by condition, we find that IMS significantly predicts decrease in relatively right-than-left cortical activity for those in the experimental condition,

B = -.09, *SE* = 0.04, *p* = .02. However, for participants in the control condition, there was a non-significant relationship between IMS and frontal cortical activity evident via EEG during evaluation of Muslims, *B* = .04, *SE* = .05, *p* = .38 (see Figure 1b).

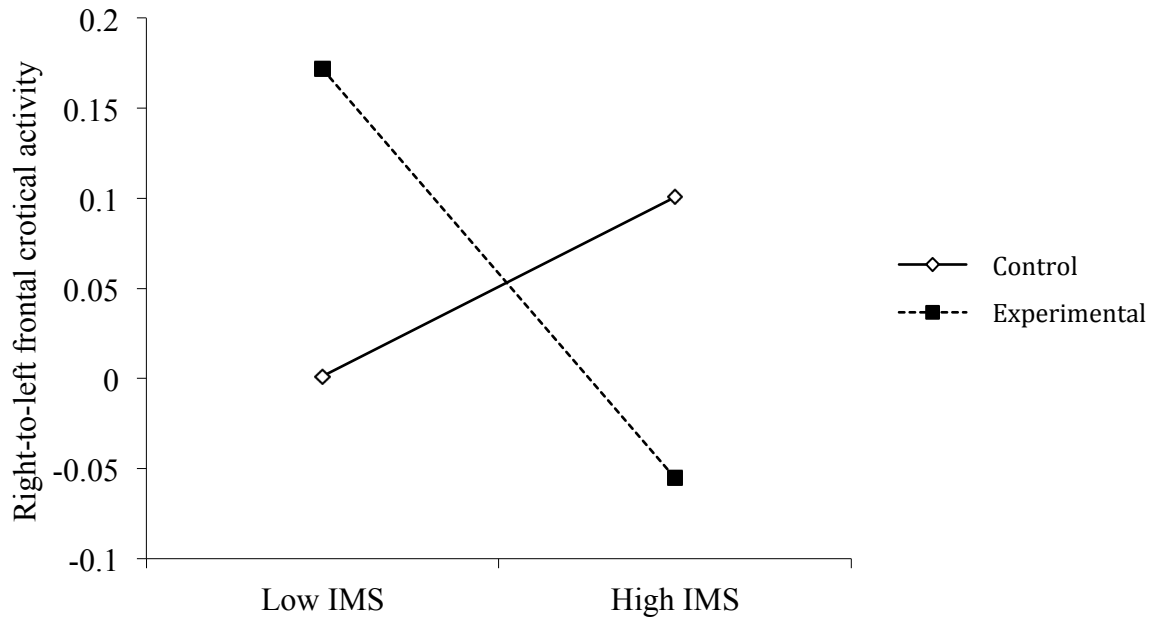

Figure 1b. Interaction effects of condition and IMS on right-to-left cortical activity. Decomposing by condition.

Similarly, moderation analyses revealed a significant interaction between condition and IMS on attitudes toward Muslims, *B* = 5.34, *SE* = 2.27, *p* = .02 (see Figure 2). Johnson-Neyman tests for significance regions showed that the effect of condition on attitude toward Muslims was significant for participants who reported low IMS (i.e., *IMS* < 6.1; *IMS* ranges from 1 to 9). Specifically, Johnson-Neyman tests revealed that for those with IMS < 6.1, tolerance decreased attitude toward Muslims relative to those in the control condition, *B* > -7.8, *SE* > 3.7, *p* < .05, 95% CI [-15.57, -0.27]. However, for participants in the control

condition, this relationship was in the same direction, but non- significant, $B = 2.76$, $SE = 1.81$, $p = .13$ (see Figure 2a).

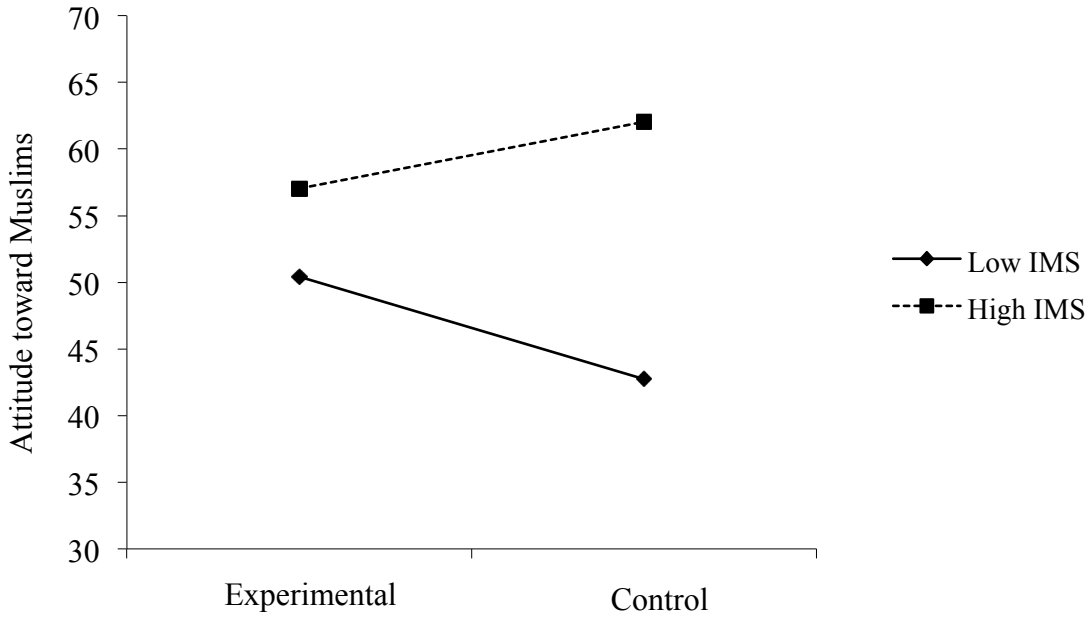

Figure 2a. Interaction effects of condition and IMS on attitude toward Muslims. Decomposing by level of IMS.

Decomposing the interaction by condition, we find that for participants in the experimental condition, there was a significant relationship between IMS and positive attitudes toward Muslims, $B = 8.10$, $SE = 1.37$, $p < .001$. However, for participants in the control condition, this relationship was in the same direction, but non- significant, $B = 2.76$, $SE = 1.81$, $p = .13$ (see Figure 2b).

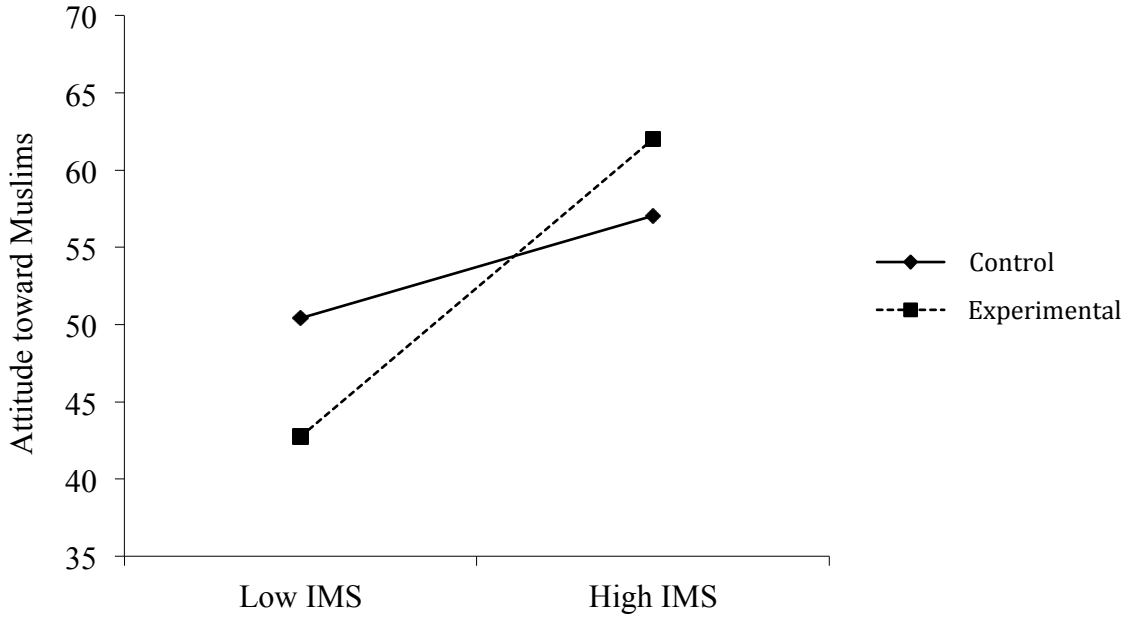

Figure 2b. Interaction effects of condition and IMS on attitude toward Muslims. Decomposing by condition.

Conditional Process Analyses. Finally, a conditional process model (i.e., moderated mediation) revealed a significant index of moderated mediation for condition and IMS on frontal cortical activity and Muslim attitudes, *Effect* = .99, *SE* = .64, 95% CI [.07, 2.74]. These results suggest that there is a significant indirect effect of relatively greater right-than-left cortical activity on the relationship between IMS and Condition on Muslim attitudes.

External Motivation to Control Prejudice. Multiple regression analyses using Hayes (2013) PROCESS macro were also conducted to examine the interactive effect of EMS and condition on frontal cortical activity and outgroup attitudes. Analyses revealed a non-significant interaction between condition and EMS on attitudes toward Muslims, *B* = -1.56, *SE* = 1.81, *p* = .39. Similarly, there was no significant interaction between condition and EMS on level of frontal cortical activity as assessed by the EEG while participants were asked to evaluate Muslims, *B* = -.002 *SE* = .05, *p* = .96.

Discussion

Despite the existence of a large literature aimed at improving intergroup relations by reducing negative outgroup attitudes, little attention has been placed on understanding situations where people disapprove of an outgroup's values, norms, or practices, while considering reasons to nevertheless accept these (i.e., intergroup toleration; Verkuyten & Yogeeswaran, 2016). Given the level of contemporary debate about the incompatibility in the values, norms, and practices of Muslims with western values, norms, and practices, it is important that we try and better understand what processes take place in such situations when people disapprove of an outgroup's norms, values, and practices, but nevertheless decide to endure these differences for other reasons.

The present research utilises research on the action-based model of dissonance to better understand the psychological processes involved in intergroup tolerance. Additionally, I examined the moderating impact of motivation to respond without prejudice on, both cognitive conflict emerging from intergroup tolerance and outgroup attitudes. If our theoretical assumptions of intergroup tolerance are valid, participants should, based on action-based model of dissonance, experience cognitive discrepancy (measured by EEG) and dissonance reduction (measured by attitude toward Muslims) after engaging in it. Based on previous literatures, I hypothesised that intergroup tolerance should lead to cognitive dissonance and attitude change. Additionally, I predicted that this relationship might be established only among people who are highly motivated to seek positive relations with outgroups by personal beliefs (high IMS), but not for those who are low on this motivation (low IMS). Also, because either intergroup tolerance or outgroup objection can serve as a cue that activates control responses, people with high IMS were expected to experience dissonance regardless of the condition they were assigned to. External motivations (EMS),

such as social or normative pressures, to respond without prejudice should have no effect on this relationship.

Some of the findings of the current study are in line with the predictions and some are not. First, neither intergroup tolerance nor high level of IMS had direct relations with cognitive dissonance and attitude change. Results also showed that after practicing intergroup tolerance, only participants with very low IMS, but not high IMS, showed less cognitive dissonance, as measured by relative right-to-left frontal cortical activity, when asked to evaluate Muslims. Their counterparts (low IMS) also showed more negative attitude toward Muslims after practicing intergroup tolerance. EMS had no effect on the relationship between tolerance and its outcomes. Finally, practicing intergroup tolerance unexpectedly led to decreased cognitive dissonance and this increased negative attitude toward Muslims for people with low IMS.

The present study has a number of implications and limitations that could be improved in the future. First, according to previous literatures, high IMS should directly associate with more positive attitude toward outgroups, but I only found a significant result in the tolerance condition but not in the control condition. This might because the objection manipulation evoked an aversive affect toward Muslims that was too strong to an extent that it temporarily lowered the influence of IMS toward the outgroup. As mentioned earlier, because Muslim values are often perceived as being incompatible with Western values, asking participants to think of the Muslim practices or values that they disapprove of might remind them of this cultural discrepancy, and in turn elicited aversive feelings.

Another limitation of the present work is that participants in the experimental and control conditions spent slightly different amounts of time to complete the experimental tasks while EEG was measured. Because of this, I could not directly compare the EEG data at the period when they were practicing intergroup tolerance versus outgroup objection alone.

Instead our focus on the psychological process is specific to the period when all participants were asked to evaluate Muslims. However, it may be that an even better snapshot of cognitive dissonance would be during the time when participants are practicing tolerance by considering reasons to nevertheless endure the differences in norms, values, and practices that they disapprove of. However, the obstacle to doing this was the inability to find a suitable comparable task for the control condition participants that could be completed during that time. Future studies should identify a suitable analogous task that makes the conditions more comparable during that same time frame. This could be potentially challenging because any priming task that requires mental effort is likely to activate frontal cortex. For example, studies have found that prefrontal cortex implicates a number of functions that predict an extremely wide range of behaviours and emotions. These functions include complex cognitive behaviour, personality expression, decision making and moderating social behaviour (DeYoung, Hirsh, Shane, Papademetris, Rajeevan, & Gray, 2010; Yang & Raine, 2009). In short, it is difficult to establish a control condition that allows a meaningful comparison. Two other possible solutions may also help solve this problem and may also offer different perspectives to the relationship between intergroup tolerance and cognitive dissonance. First, future study may examine this relationship with a within-subject experimental design. This would allow researchers to carry out this experiment without having to have a control condition. This may also offer evidence for changes in brain activities (compare with the baseline) and attitude before vs. after the experimental manipulations while controlling individual differences. Second, a simpler priming task may also allow for easier data management. Future study may ask participants to practice intergroup tolerance with a single task. For example, “list a cultural practice or value that you disagree or disapprove of, but you think that you should nevertheless tolerate or accept” This task alone should be able to evoke cognitive discrepancy and at same time offers an

opportunity for dissonance reduction (attitude change). Most importantly, this is straightforward, able to limits other unwanted mental processes to its minimum and vividly simulates tolerance responses in the real world situations.

Another limitation is that the present study only used explicit measure to assess attitude toward Muslims. While explicit measures are easy to administer, they are subject to social desirability concerns. As mentioned previously, the increasing emphasis on egalitarianism in legislation, and social norms has largely made people more cautious about their public expression of prejudice toward outgroups. Because of this normative change, studies have shown that self-report explicit measure of racial attitude have become increasingly more positive (for a review, see Plant & Devine, 1998). Instead, attitudes that are measured using reaction-time tools to capture implicit biases that are automatic, ubiquitous, and more difficult to exert conscious control over, might be better to simultaneously incorporate (Yogeeswaran, Devos & Nash, 2016). Future studies are encouraged to use implicit assessments such as the implicit association test (IAT), Go/No-Go Association Task (GNAT) or evaluative priming (see Yogeeswaran et al., 2016 for review).

As one of the most influential theories in psychology, cognitive dissonance could offer extremely rich theoretical background in the development of intergroup tolerance. Also, because the two important components of intergroup tolerance are cognitively conflicting in nature, cognitive dissonance theories may always inevitably mentioned in this line of study. Future studies should continue striving to parallel the two concepts.

In conclusion, the present work demonstrates that nuanced ways in which intergroup tolerance can influence cognitive conflict and in turn outgroup attitudes among specific individuals. My data here suggests that for people particularly low in their internal motivation to control prejudice, practicing intergroup tolerance decreases the level of cognitive conflict they experience when subsequently evaluating Muslims and this decreased conflict increases

their negative attitudes toward Muslims. By contrast, people's external motivation to control prejudice has no interactive effect with intergroup tolerance on either cognitive conflict or Muslim attitudes suggesting that people's internal reasons for being unprejudiced are key.

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Appendices

Appendix A: Ethical Approval

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HUMAN ETHICS COMMITTEE

Secretary, Rebecca Robinson
Telephone: +64 03 364 2987, Extn 45588
Email: human-ethics@canterbury.ac.nz

Ref: HEC 2016/62

15 July 2016

Hongwei Jia
Psychology
UNIVERSITY OF CANTERBURY

Dear Hongwei

The Human Ethics Committee advises that your research proposal "Exploring the Psychological Processes Involved in Intergroup Tolerance" has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 14th July 2016.

Best wishes for your project.

Yours sincerely

pp. R. Robinson

Jane Maidment
Chair
University of Canterbury Human Ethics Committee

Appendix B: Information Sheet and Consent Form

Department of Psychology
Telephone: +64 3 364 2987 extn 7282
Email: hongwei.jia@pg.caterbury.ac.nz

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Information Sheet

Personality and Social Reasoning

My name is Hongwei Jia and I am a Masters student at the University of Canterbury. This research project is carried out to fulfil my Master's thesis.

If you choose to take part in this study, you will complete a series of questionnaires while wearing an EEG headset measuring your neural activity. This headset will examine neural activity relating to your reasoning and information processing as you reflect upon various contemporary issues. Additionally, you will complete several questionnaires which will gather information about your background or assess dimensions of your personality and social attitudes.

Participation is entirely voluntary and you have the right to withdraw at any stage without penalty. You are also free to skip over any questions you do not wish to answer in the study. You will also have the option of having your responses deleted at the very end of the study.

The results of the project may be published, but you can be assured of the complete confidentiality of data gathered in this investigation: your personal identity will not be made available under any circumstance. To ensure anonymity and confidentiality, you will not be asked to disclose any identifying information beyond your age, gender, ethnicity, nationality and religious affiliation. All data, including the signed consent forms will be store in a locked cabinet in the researcher's office, and your responses on the questionnaires will also be recorded on a password-protected computer. Data is only accessible to the researchers of this project and the raw data will be destroyed after 10 years of my degree completion. A thesis is a public document and will be available through the UC Library.

Please indicate to the researcher on the consent form if you would like to receive a copy of the summary of results of the project.

The project is being carried out as a requirement for MSc Masters degree by Hongwei Jia (hongwei.jia@pg.canterbury.ac.nz) under the supervision of Dr Kumar Yogeeswaran, who can be contacted at kumar.yogeeswaran@canterbury.ac.nz. We will be pleased to discuss any concerns you may have about participation in the project.

This project has been reviewed and approved by the University of Canterbury Human Ethics Committee, and participants should address any complaints to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz). If you agree to participate in the study, you are asked to complete the consent form.

Hongwei Jia

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UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Personality and Social Reasoning

Consent Form

Include a statement regarding each of the following:

- ☐ I have been given a full explanation of this project and have had the opportunity to ask questions.
- ☐ I understand what is required of me if I agree to take part in the research.
- ☐ I understand that participation is voluntary and I may withdraw at any time without penalty. Withdrawal of participation will also include the option to have my responses at the very end of this session.
- ☐ I understand that any information or opinions I provide will be kept confidential to the researcher and that any published or reported results will not identify the participants.
- ☐ I understand that a thesis is a public document and will be available through the UC Library.
- ☐ I understand that all data collected for the study will be kept in locked and secure facilities and/or in password protected electronic form. The raw data will be destroyed after ten years.
- ☐ I understand the risks associated with taking part and how they will be managed.
- ☐ I understand that I am able to receive a report on the findings of the study by contacting the researcher at the conclusion of the project.
- ☐ I understand that I can contact the researcher Hongwei Jia or supervisor Dr Kumar Yogeeswaran for further information. If I have any complaints, I can contact the Chair of the University of Canterbury Human Ethics Committee, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz)
- ☐ I would like a summary of the results of the project (Leave it blank if you do not wish to receive the results): _____
- ☐ By signing below, I agree to participate in this research project.

Name:_____ Signed:_____ Date:_____

Appendix C: Demographic Information and Motivation to Control Prejudice Scale

1. What is your gender?
2. What is your age?
3. What is your ethnicity?
4. What is your nationality or country of citizenship?
5. What stage are you in your university education?
6. Do you identify with nay religion? (if yes, please specify which)
7. Use the scale below to indicate your response to the following statements:

	1	2	3	4	5
Identify with my country or nation.					
Identify with my ethnic group.					
I identify with my gender					
I identify with my religion					

Please read the following statements and for each, check the box that best represents you.

Not at all like me 1 2 3 4 5 6 7 8 9 Very much like me

1. I attempt to act in non-prejudiced ways toward people of other ethnic groups because it is personally important to me.
2. According to my personal values, using stereotypes about people of other ethnic groups is OK.
3. I am personally motivated by my beliefs to be non-prejudiced toward people of other ethnic groups.
4. I try to hide any negative thoughts about people from other ethnic groups in order to avoid negative reactions from others.
5. If I acted prejudiced toward people from other ethnic groups, I would be concerned that others would be angry with me.
6. I attempt to appear non-prejudiced toward people from other ethnic groups in order to avoid disapproval from others.
7. I try to act non-prejudiced toward people from other ethnic groups because of pressure from others.
8. Because of my personal values, I believe that using stereotypes about people from other ethnic groups is wrong.
9. Being non-prejudiced toward people from other ethnic groups is important to my self-concept.
10. Because of today's politically correct standards I try to appear non-prejudiced toward people from other ethnic groups.

Appendix D: Instructions on E-prime while measuring EEG

Welcome to the second part of the experiment

Press the enter key to continue...

Remember to take a short break between the blocks, because the following tasks will require your full attention.

When you are ready, press the enter key to continue...

On the next page, you will be asked to type few sentences in a text box. Please note that there is only an underscore (_) that does not blink in the space to write. You can use Space, Backspace, and all the arrow keys, but **DO NOT** press the enter key until you are completely finished writing as this will automatically move you to the next page.

When you are ready to start this task, press the enter key to go to the next page...

New Zealand has an increasingly multicultural population where people of different cultural backgrounds live together. Inevitably, this means that there are cultural values or practices that are different from what you sincerely believe in, or even incompatible and conflicting with those beliefs and values. In such cases, it is quite normal and understandable for people to disapprove or object to these specific norms and practices, without necessarily holding any prejudice toward the group as a whole.

Today, we would like you to reflect on the norms, values, and practices of Muslims. Currently, it is estimated that about 40,000 Muslims live in NZ with those numbers expected to grow to 100,000 by 2030. In the task that follows, we would like you to reflect on three specific Muslim/Islamic norms or practices that you have heard about which you disagree or disapprove of, even slightly or somewhat.

When you are finished, press the enter key to go to the next page…

Now, please describe the another Muslim/Islamic norm or practice that you disagree or disapprove of.

When you are finished, press the enter key to go to the next page…

Please describe the third Muslim/Islamic norm or practice that you disagree or disapprove of

When you are finished, press the enter key to go to the next page…

Here are some of the answers that other participants gave to the previous task. This is simply a collection of the practices or values that other participants in the study listed that they disagree with or disapprove of.

When you are finished, press the enter key to go to the next page…

Please spend AT LEAST 60 seconds reading and reflecting on the statements below. Think about the following Islamic/Muslim practices and on the next pages, you will be asked to identify **THREE** practices or values you disagree with or disapprove of.

1. Creation of Islamic schools
2. Practice of Muslim men and women not shaking hands with someone of the opposite sex.
3. Formation of an Islamic political party
4. Wearing of the hijab and burqa in public places
5. Treating daughters differently from sons
6. Women are not allowed to show her hair or "too much" skin in public
7. Eating with hands
8. Parents arranging marriages for their children
9. Creation of separate swimming pools for men and women
0. Building new Mosques.

When you are finished reading the list above, press the enter key to go to the next page…

On this page, indicate the **first** value or practice you disapprove of or disagree with.

Simply press the number corresponding to the statement and your response will automatically be recorded.

1. Creation of Islamic schools
2. Practice of Muslim men and women not shaking hands with someone of the opposite sex.
3. Formation of an Islamic political party
4. Wearing of the hijab and burqa in public places
5. Treating daughters differently from sons
6. Women are not allowed to show her hair or "too much" skin in public
7. Eating with hands
8. Parents arranging marriages for their children
9. Creation of separate swimming pools for men and women
0. Building new Mosques.

On this page, indicate the **second** value or practice you disapprove of or disagree with.

Simply press the number corresponding to the statement and your response will automatically be recorded.

1. Creation of Islamic schools
2. Practice of Muslim men and women not shaking hands with someone of the opposite sex.
3. Formation of an Islamic political party
4. Wearing of the hijab and burqa in public places
5. Treating daughters differently from sons
6. Women are not allowed to show her hair or "too much" skin in public
7. Eating with hands
8. Parents arranging marriages for their children
9. Creation of separate swimming pools for men and women
0. Building new Mosques.

On this page, indicate the **third** value or practice you disapprove of or disagree with.

Simply press the number corresponding to the statement and your response will automatically be recorded.

1. Creation of Islamic schools
2. Practice of Muslim men and women not shaking hands with someone of the opposite sex.
3. Formation of an Islamic political party
4. Wearing of the hijab and burqa in public places
5. Treating daughters differently from sons
6. Women are not allowed to show her hair or "too much" skin in public
7. Eating with hands
8. Parents arranging marriages for their children
9. Creation of separate swimming pools for men and women
0. Building new Mosques.

We would like you to consider each of the Islamic/Muslim practice or value that you selected and reflect on why even though you or others in New Zealand may disagree or disapprove of it, we should nevertheless allow Muslim people to engage in them? In other words, why do you think that these values or practices should be tolerated?

When you are finished, press the enter key to go to the next page…

Now, please provide a reason to tolerate or accept this value or practice in society.

When you are finished, press the enter key to go to the next page…

Now, please provide a reason to tolerate or accept this value or practice in society.

When you are finished, press the enter key to go to the next page…

Here are some of the responses that other participants gave to the task you just completed.

Please type the number corresponding to the statements that you feel are most similar to your own or ones you simply agree with.

Creation of Islamic schools in New Zealand

1) It promotes cultural uniqueness

2) Children/youth can benefit from religious spirituality, and develop good manners that keep them away from trouble

3) Similar to Christian schools, it allows for the teaching of one's own culture and values

4) Safe environment for Muslim children to learn at an early stage of life

When you are finished, press the enter key to go to the next page…

Here are some of the responses that other participants gave to the task you just completed.

Please type the number corresponding to the statements that you feel are most similar to your own or ones you simply agree with. You can indicate more than one by simply separating the numbers by a comma (e.g., 1,2,3) and then hitting the enter key.

Treating daughters and sons differently

1) Parents may be more restrictive of what their daughters can do because they are worried for their safety

2) We should not tell parents how to raise their children as long as they are not abusing them

When you are finished, press the enter key to go to the next page…

Here are some of the responses that other participants gave to the task you just completed.

Please type the number corresponding to the statements that you feel are most similar to your own or ones you simply agree with. You can indicate more than one by simply separating the numbers by a comma (e.g., 1,2,3) and then hitting the enter key.

Practice of Muslim men and women not shaking hands with someone of the opposite sex

1) People of different cultures have different norms of how to greet others; we should not force people to adopt our ways if they have a different way of greeting others
2) There are other ways to greet someone; in some cultures, one may bow their head down, or they may smile and nod their head, or they may put their hand on their heart; we don't need to expect everyone to do the same

When you are finished, press the enter key to go to the next page…

Here are some of the responses that other participants gave to the task you just completed.

Please type the number corresponding to the statements that you feel are most similar to your own or ones you simply agree with. You can indicate more than one by simply separating the numbers by a comma (e.g., 1,2,3) and then hitting the enter key.

Women are not allowed to show their hair or "too much" skin in public

1) We should not force everybody to do whatever we are doing
2) Families should be allowed to have their own standards on what is acceptable behaviour in public

When you are finished, press the enter key to go to the next page…

Here are some of the responses that other participants gave to the task you just completed.

Please type the number corresponding to the statements that you feel are most similar to your own or ones you simply agree with. You can indicate more than one by simply separating the numbers by a comma (e.g., 1,2,3) and then hitting the enter key.

Eating with hands

1) People of different cultures may have different table manners depending on the type of food one traditionally eats, so we should accept that people have different ways of doing things
2) Some use forks and knives, others use chopsticks, and others use hands

When you are finished, press the enter key to go to the next page…

Here are some of the responses that other participants gave to the task you just completed.

Please type the number corresponding to the statements that you feel are most similar to your own or ones you simply agree with. You can indicate more than one by simply separating the numbers by a comma (e.g., 1,2,3) and then hitting the enter key.

Formation of an Islamic political party

1) It may promote better representation of one's cultural values and therefore it should be allowed
2) Promotes cultural uniqueness

When you are finished, press the enter key to go to the next page…

Here are some of the responses that other participants gave to the task you just completed.

Please type the number corresponding to the statements that you feel are most similar to your own or ones you simply agree with. You can indicate more than one by simply separating the numbers by a comma (e.g., 1,2,3) and then hitting the enter key.

Wearing of hijab (partial veil) and burqa (full veil) in public places

1) Everybody has an equal right to practice his or her own religion
2) There are a lot of different clothing practices. In some cultures, men would wear skirts, women would wear turbans.

When you are finished, press the enter key to go to the next page…

Here are some of the responses that other participants gave to the task you just completed.

Please type the number corresponding to the statements that you feel are most similar to your own or ones you simply agree with. You can indicate more than one by simply separating the numbers by a comma (e.g., 1,2,3) and then hitting the enter key.

Parents arranging marriages for their children

1) Parents of different cultures have different practices as to their involvement in their children's lives
2) Arranged marriages were the norm even in western cultures until a hundred or so years ago, so we should allow cultures to change on their own

When you are finished, press the enter key to go to the next page…

Here are some of the responses that other participants gave to the task you just completed.

Please type the number corresponding to the statements that you feel are most similar to your own or ones you simply agree with. You can indicate more than one by simply separating the numbers by a comma (e.g., 1,2,3) and then hitting the enter key.

Creation of separate swimming pools for men and women

1) If some people are more comfortable in separate swimming pools, then we should not stop them from doing so

2) People are free to practice their religion and if they prefer that men and women use separate swimming pools, then we should allow them to do so

When you are finished, press the enter key to go to the next page…

Here are some of the responses that other participants gave to the task you just completed.

Please type the number corresponding to the statements that you feel are most similar to your own or ones you simply agree with. You can indicate more than one by simply separating the numbers by a comma (e.g., 1,2,3) and then hitting the enter key.

Building new mosques

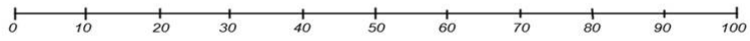
1) People should have equal rights to practice their religions

2) If we allow Christians building churches and Buddhists building temples, then there is no reason to stop Muslims from building mosques

3) Non-believers should have the rights to learn about Islam

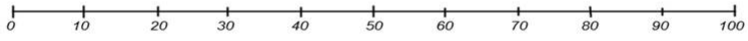
When you are finished, press the enter key to go to the next page…

Using the scale below, indicate how you feel about **CHRISTIANS** in general. If you type a number between **0 degree and 49 degrees, that indicates you feel cold, or unfavourable,** towards Christians. Typing **50 degrees means that you feel neutral** and typing a number between **51 degrees and 100 degrees means that you feel warm, or favourable**, towards Christians.



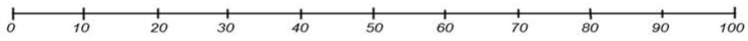
Once you have typed your response in the box, press the enter key to go to the next page…

Using the scale below, indicate how you feel about **ATHEISTS** in general. If you type a number between **0 degree and 49 degrees, that indicates you feel cold, or unfavourable,** towards Atheists. Typing **50 degrees means that you feel neutral** and typing a number between **51 degrees and 100 degrees means that you feel warm, or favourable**, towards Atheists.



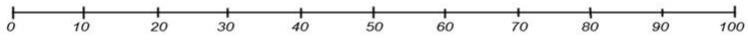
Once you have typed your response in the box, press the enter key to go to the next page…

Using the scale below, indicate how you feel about **MUSLIMS** in general. If you type a number between **0 degree and 49 degrees, that indicates you feel cold, or unfavourable,** towards Muslims. Typing **50 degrees means that you feel neutral** and typing a number between **51 degrees and 100 degrees means that you feel warm, or favourable**, towards Muslims.



Once you have typed your response in the box, press the enter key to go to the next page…

Using the scale below, indicate how you feel about **ELDERLY** in general. If you type a number between **0 degree and 49 degrees, that indicates you feel cold, or unfavourable,** towards Elderly. Typing **50 degrees means that you feel neutral** and typing a number between **51 degrees and 100 degrees means that you feel warm, or favourable**, towards Elderly.



Once you have typed your response in the box, press the enter key to go to the next page…

Appendix E: Debriefing Sheet

Debriefing Sheet

Thank you for participating in this study. The true purpose of this study was to examine the psychological processes involved in practicing tolerance. As globalisation has increased cultural diversity in many countries around the world (including New Zealand), there is a growing need to try to better understand how we can peacefully live side-by-side despite our differences. In some cases, however, we are faced with situations where we simply disapprove or object to the practices of another group, but nevertheless, we tolerate or endure these differences -- this reflects the idea of intergroup tolerance.

Although the concept of intergroup tolerance is fairly fundamental to social relations, there is surprisingly little known the psychological foundations of it, the limitations people place on it, or the processes involved in it (Verkuyten & Yogeeswaran, 2016). In the present research, we wanted to examine the psychological processes involved in intergroup tolerance by asking you to engage in it, while we measured neural activity in the brain. We did this because we hypothesized that practicing tolerance is difficult and can create cognitive conflicts between what people object to, but nevertheless agree to accept. The writing task you completed where you reflected on various Muslim practices and wrote about your objection to these before reflecting on reasons to nevertheless accept these practices was an exercise of intergroup toleration. While some of you only reflected on your objections to these practices, others had to practice intergroup tolerance. While you were completing this exercise, we measured your neural activity to get an index of cognitive conflict (Hirsh & Kang, 2016) during such a task. The questionnaires you completed were simply measures of various aspects of your personality as we told you at the beginning. These questionnaires assessed a series of dimensions including one's social identification, political orientation, need for closure, self-control, and dogmatism. These measures will help us understand if the effects of toleration are similar or different for people with different personality dispositions.

In order to gain a better understanding of how practicing toleration works, we could not tell you the full purpose of the tasks you completed. By informing you of the true purpose of the tasks, it may have inadvertently influenced your neural activity, thus biasing the results, so we had to with-hold this information until now. Additionally, we could not tell you about the true meaning of each of the measures you completed because when people know that their responses are being recorded, they tend to respond with what they believe the socially acceptable answer to be and not how they truly feel. It was therefore vital to the integrity of the study that you were not aware of its true nature.

In light of this new information provided, if you wish to withdraw from this study without any consequences, simply let us know now and your information will be deleted. However, please note that even if you choose to have your responses included in this study, your name or identity will not be connected to your responses at any time as we will only use aggregate data for any presentation of the findings. Moreover, your responses will only be stored on file with a randomly generated code and no other personal information about you will be on any record of the study. Are you willing to have your data included in the study?

Yes No

Any inquiries or complaints can be addressed to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch, New Zealand, (human-ethics@canterbury.ac.nz) or (03 364 2987).

If you are interested in learning more about the study, or if you have any concerns regarding any aspect of this study, please feel free to contact Hongwei Jia (hongwei.jia@pg.canterbury.ac.nz) or Dr Kumar Yogeeswaran (kumar.yogeeswaran@canterbury.ac.nz). If any distress was experienced due to the study, please contact either Lifeline (0800 543 354) or the UC Health Centre (03 364 2402).

Thank you again for your participation.